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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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TOSHIYUKI TANAKA

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01/17/2006

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EXAMINER

TRAN, NHAN T

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/354,815

Applicant(s)

TANAKA, TOSHIYUKI

Examiner

Nhan T. Tran

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 16-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/1/2005 with respect to claims 1-15 and new claims 16-18 have been fully considered but the arguments for claims 1-15 are not persuasive.

Regarding independent claim 1, the Applicant mainly relies upon the light re-measurement in step S4 in Nishimura to conclude that Nishimura does not teach "a first controller for controlling an exposure amount of said image pick-up element for a next frame in a sequence of photographs directly based on the light-quantity data of a previous frame output from said light receiving element in the sequence-photograph mode." (Remarks, pages 7 & 8).

In response, the Examiner respectfully clarifies the Office Action and also disagrees with the Applicant. It is shown in Fig. 8 of Nishimura that an exposure amount of the image pick-up element for a next frame (a subsequent frame after step S9 when the SW2 is maintained ON) in sequence of photographs directly based on the light quantity data (step S2 in Fig. 8 established from the light measuring circuit LM shown in Fig. 7 or 219 shown in Fig. 18) of a previous frame output from the light-receiving element in the sequence-photograph mode. See col. 8, lines 15-18, 59-68 and col. 10, lines 5-27. It is clear that the exposure amount of the image pick-up for a next frame in the continuous mode is the same as the exposure amount for a previous frame (a first frame in the sequence of photographs) due to the loop back to step S5 from step S9 to minimize the time required for the real exposure during the continuous photographing. Importantly, the exposure amount (T_v and A_v) for the previous frame (the first frame in the sequence of photographs) is directly based on the light quantity data output from the

Art Unit: 2615

light measuring circuit (from step S2) when it is determined that the exposure amount need not to be corrected as shown in col. 8, lines 59-68. This exposure amount is again used for the next frame in the sequence of photographs.

Note that the claimed limitation “the light-quantity data of a previous frame output from said light-receiving element” is understood as the light-quantity data **for** a previous frame output from said light-receiving element because *the Applicant’s specification does not support the light receiving element (sensor 305) outputting a frame*. In fact, the light receiving element 305 is simply a conventional photodiode (Fig. 4) to detect illuminance, it is not a two-dimensional image sensor to output a frame as the Applicant’s arguments. Therefore, the Examiner believes the above mentioned limitation mistakenly written to mean “for a previous frame” which is fully supported by the specification. Objection to the claim is also addressed in this Office Action.

Regarding claims 6 & 11, the Examiner respectfully submits the same explanation provided for claim 1.

In view of the above, the Examiner believes that the interpretation of the present claimed invention does read on the cited references for at least the reasons discussed above and as stated in the following Office Action.

Claim Objections

2. Claims 1, 6 & 11 are objected to because of the recitation “the light-quantity data of a previous frame output from said light-receiving element” which should be changed to -- the light-quantity data **for** a previous frame output from said light-receiving element --. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6-8, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ejima et al (US 6,427,423) in view of Nishimura et al (US 5,012,271).

Regarding claim 1, Ejima discloses a digital camera having a sequence-photograph mode (i.e., **one** of continuous modes with LCD closed) and other modes (i.e., a single mode S with LCD open and other continuous modes L, H with LCD open) as shown in Figs. 1-3, col. 4, lines 38-57 and col. 9, lines 7-61; the digital camera comprising:

an image pick-up element (20) for receiving light reflected from an object and outputting image data of the object (Fig. 6);

a light-receiving element (16, 51) for outputting data as to a light quantity received from the object, the light-receiving element being different from the image pick-up element (Fig. 6);

a first controller (39) for controlling an exposure amount (i.e., brightness value affected by aperture stop 54 and electronic shutter) of the image pick-up element for a next frame in a sequence of photographs based on the light-quantity data output from the light receiving in the sequence photograph mode (see Fig. 6; col. 6, line 64 – col. 7, line 30; col. 8, lines 24-38 and col.

Art Unit: 2615

9, lines 7-22 and note that when LCD is closed, the exposure amount is calculated based on the output from photometric circuit 51);

a second controller (33, 39) for controlling the exposure amount (brightness value) of the image pick-up element based on the image data output from the image pick-up element in the other modes (see Fig. 6; col. 8, lines 39-53 and note that the electronic shutter is controlled by using the feedback loop at CCD driving circuit 34 from DSP 33 as described in col. 6, lines 13-17).

Ejima does not explicitly disclose that the exposure amount of the image pick-up element for the next frame in the sequence of photographs is determined directly based on the light quantity data of (for) a previous frame output from the light-receiving element in the sequence-photograph mode. As taught by Nishimura, an exposure amount of an image sensor (CCD 1 shown in Fig. 18) for a next frame in a continuous shooting mode is directly based on the light quantity data of a previous frame (S1 – S4 shown in Fig. 8) output from a light measurement sensor (LM shown in Fig. 7 or 219 shown in Fig. 18) so that the continuous shooting is realized at high speed because it is arranged minimize the time required for the real exposure, and it is also advantageous in reduction of energy consumption (see Nishimura, col. 8, lines 9-30 and col. 9, line 45 – col. 10, line 28).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Ejima by controlling the exposure amount for a next frame in the continuous shooting mode (with LCD closed) in the way that the exposure amount for the next frame would be determined directly based on the light-quantity data output from photometric element in a previous frame so as to

Art Unit: 2615

reduce the time for controlling an exposure amount of the image sensor, thereby increasing continuous shooting rate at high speed and also reducing power consumption.

Regarding claim 2, Ejima shows a CCD (20) in Fig. 6.

Regarding claim 3, Ejima discloses that a charge accumulation time of the CCD (brightness affected by electronic shutter) is controlled by the second controller based on the image data output from the image pick-up element (20) as shown in Fig. 6 and col. 8, lines 39-53 and note the feedback loop at the CCD driving circuit (34) for controlling electronic shutter of the CCD.

Regarding claims 6 - 8, see the analyses of claims 1-3, respectively.

Regarding claims 11-13, see the analyses of claims 1-3, respectively.

4. Claims 4-5, 9-10, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ejima et al (US 6,427,423) in view of Nishimura et al (US 5,012,271) and in further view of Aoki et al (US 5,424,772).

Regarding claim 4, Ejima further discloses parameters of a strobe (4) that is controlled by the CPU 39 and also discloses a strobe driving circuit 37 (a third controller) for emitting a light (col. 7, lines 31-32). However, Ejima and Nishimura do not explicitly teach that the strobe is

Art Unit: 2615

controlled based on the light-quantity data output from the light-receiving element in the other modes.

Aoki teaches that photometric value (light quantity data) output from a photometric element is measured. If the photometric value is lower than a predetermined value, i.e., object to be photographed is dark, the strobe control circuit 53 is initiated to start the charging of a strobe capacitor for emitting a light (col. 7, lines 35-50 and col. 14, lines 24-27).

Therefore, it would have been obvious to one of ordinary skill in the art to further modify Ejima and Nishimura to include the teaching of Aoki for emitting a light based on the light quantity data in other modes when object to be photographed is dark so as to improve image quality.

Regarding claim 5, it is also seen that the quantity of the strobe (flash lamp) is controlled as whether to emit a light (quantity is a certain number) or not to emit a light (quantity = 0).

Regarding claims 9 & 10, see the analyses of claims 4 & 5, respectively.

Regarding claims 14 & 15, see the analyses of claims 4 & 5, respectively.

Allowable Subject Matter

5. Claims 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2615

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or fairly suggest the limitation required in each of claims 16-18 “*wherein the light-receiving element outputs the light-quantity data during each frame in the sequence-photograph mode*” in combination with all limitations of their corresponding independent claims 1, 6 and 11, respectively.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:30pm.

Art Unit: 2615

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NT.

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal line extending to the right.

DAVID OMETZ
SUPERVISORY PATENT EXAMINER